INDEX.

ILLUSTRATIONS.

A

Accident, railway, surgery.. 384
Acid, carbonic, pump..... 87
Aeronautics in France..357, 364
Aeroplane, Bleriot 116
Aeroplane, Bleriot..... 470
Aeroplane, Gillespie..... 448
Aeroplane, model of..... 448
Aeroplane, Santos Dumont's.. 117
Africa, fighting tribes..... 51
Airship anchor..... 119
Airship, dirigible 461
Airship, Parseval 341, 342
Airship, Van Zeppelin's..... 470
Airship "Ville de Paris".. 357
Airship, Wellman's 7
Alcohol smuggler, Paris.... 208
Alkaloids, extraction 417
Ambulance, motor..... 172
Anchor, airship 119
Animal trap 179
Aqueduct, Washington 173
Arc light, flaming..... 70
Ash pan, collapsible..... 452
Automobile, mail delivery... 86
Automobile, Renault 65
Automobile, toy 472
Automobiles, utility 97
Autos in eliminat. race..232, 233
Axle and wheel, car..... 140
Azaleas, retarded..... 177

B

Balloon "Milano"..... 386
Balloon "Walhalla"..... 297
Baseball apparatus 32
Basins, catch, cleaning..... 288
Battery, storage 44
Battleship "Dreadnought" 138, 304
Battleship "Kishima"....41, 48
Battleship "Michigan"..... 82
Battleship "Missouri"..... 185
Battleship "Nebraska"..... 77
Battleship "New Jersey"..... 185
Battleship "South Carolina" 82, 305
Blasting at Fishguard..... 257
Bell casting 193
Bicycle, Archdeacon's 245
Bilbao, electric light in..... 187
Birds, flight of..... 363
Birds of Layman Island..... 431
Booby, red-footed..... 431
Botany, experim. station.... 178
Bottle, non-refillable.... 118, 388
Brake mechanism..... 31
Brick making in tropics..157, 158
Bridge, Quebec..... 225
Burial ground, prehistoric.... 360

C

Caisson, collapsible 423
Caisson, lighthouse 444
Camera, asteroid 132
Camera, hand, new..... 452
Campanile at Venice....465, 466
Can lifter, safety..... 388
Canal, Erie, enlargement..... 45
Canal for Panama..... 361
Canal, Teltow 266, 267
Canceling machine, simple.. 196
Cane mill apparatus..... 118
Cape to Cairo railway..... 361
Capsules, gelatine, mfr..... 417
Car, all-steel 113
Car door fastener..... 118
Car, electric, equipment..... 113
Carbureter, Altham..... 449
Carbureter, new 44
Check for pulleys..... 140
Chestnut tree disease..... 451
Cigar lighter 328
Cigar vending machine..... 31
Clamp, improved 179
Clipper "R. C. Rickmers".. 241
Coach, quick construction.... 81
Coaling of warships..... 381
Coin mounting machine..... 6
Collision, railway, spectac.... 31
Concentrator, gold 49
Concrete block, press for .. 327
Concrete building block..... 462
Cooking, fireless 380
Crane, electric, 150-ton..... 62
Crib, folding 31
Croton dam, new..... 129
Cruiser "Pennsylvania" 149
Culebra cut, the..... 377

D

Dam, Croton, new..... 129
Dandruff, removal, electric.. 424
Darracq racer 264, 281
De Dietrich racer 265
Deep sea instruments..... 464
Delivery wagon 97
Depression recorder 52
Devil fish 286, 287
Diving dress, new..... 423
Door hinge and check..... 368
Door knob and bell..... 32
Door opener, automatic 118
Drawbridge, Duluth, wreck.. 156
"Dreadnought," battleship 138, 304
Drugs, pure, testing..... 280
Ducks, redhead 103
Dueling school, Paris..... 340
Dynamo, experimental 485

E

East River, tunneling....84, 85
Eclipses, how they occur... 99
"Effort," sloop 109
Egg kept in rotation..... 380
Electric heating fabrics..... 96
Electroplating apparatus 87
Electroscope, micro. 96
Elephant, ancestors of..... 407
Elevator, grain, accident... 213
Ellipse, how to draw....27, 135
"Elmina," schooner 109
Embossing machine 347
Engine, steam, design..... 44
Epiphyllums, retarded 177
Erie Canal, enlargement.... 45
Excavator, steam 285
Experiment, chemical 380
Eye-spotting in nature..... 490

F

Fabrics, electric heating..... 96
Fan, novel 32
Filtration plant 173
Finch and nest..... 432
Fire fighting inventions..196, 307
Flamingo and nest..93, 102, 103
Flight of birds..... 363
Foot warmer, electric..... 96
Frayer-Miller racer 233
Furnace, Minnequa..... 208

G

Gage, window casement.... 452
Galley of Tiberius..... 21
Galveston, city of..... 64
Gas extinguisher 346
Gate, head 179
Gelatine capsules 417
Gila monsters 192
Glass, window, sheet..... 400
Gliding machines 363
Gold, sources, new..... 49
Graveyard, prehistoric 300
Grooming horses, electrically 424
Gun, compressed air..... 428
Gun, electro-magnetic 286

H

Hand, artificial 32
Head gate, portable..... 179
Heavens in August..... 63
Heavens in September..... 151
Heavens in October..... 227
Heavens in November..... 299
Heavens in December..... 399
Heavens, visible 5
Helmet, reservoir 428
Heron, black crowned..... 431
Highbridge station 207
Hinge, door, and check..... 368
Hook, self locking..... 32
Hook, two part..... 408
Hose, fire, support..... 196
Hotchkiss racer 265
Hurricane at Mobile..... 385
Hydrogenic arc emitter.... 450

I

Imperial Valley, Colorado R., 468, 469
Invention of Lincoln..... 101
Iona magazine 343, 344
Iona naval magazine....325, 326
"Irolita," sloop 109
Irrigation project, Canadian 284, 285

J

Joint, bed-rail 118
Joint, expansion 190

K

Kaffirs, war dance of..... 51
"Katori," battleship.....41, 48
"Kishima," battleship ...41, 48
Knapsack, horsehair 137
Knob and bell..... 32
Kromarograph 159

L

Lahan, Lieut., aeronaut..... 301
Lamp, lusol 484
Life-Saving Service, U. S... 488
Lift lock, Peterborough..... 3
Lighthouse, caisson..... 444
Lilies of valley retarded.176, 177
Lilium amatum 177
Lions, sea, wild..... 6
Lock, lift, Peterborough.... 3
Locomobile, engine of..... 281
Locomobile racer 232
Locomotives, models of..... 101
Locomotives, touring..... 267
Logetta of Campanile..... 465
Lubricator, engine..... 472

M

Machine, Talking, increas. power 490
Magazine, Iona..325, 326, 343, 344
Mantel, cigar box..... 213
Mars, opposition of..... 383
Masks 248, 249, 260, 261
Masses, rotating, balancing. 196
Mastodon bones..... 407
Matheson racer..... 233
"Mauretania," turbine ship 317, 320
"Michigan," battleship..... 82
Micro-electroscope, new 96
Microphotoscope 430
"Milano," balloon 386
Milk wagon 97
Milking machine 368
Miller bird 431
Minnequa works....205, 214, 215
"Missouri," battleship 185
Moon, harvest 262
Motor ambulance 172
Motor run by lightning.... 306
Motors, aeroplane 449
Musculus 428
Museum of Monaco..... 427
Museum, Patent Office..... 100

N

"Nebraska," battleship 82
Nebulae, spiral 324
"New Jersey," battleship.. 185
New York Central terminal 267
Newspaper selling machine.. 445
Nitrates from the air..... 251
Nose, red, treatment..... 308

O

Oaks, live, destruction..... 385
Office building, lofty..... 109
Optical illusion 99
Ore stamp mill..... 140
Orthopter, Florencie 117
Ox, shoeing an..... 367
Ozone generator 229

P

Panama, canal for..... 160
Panama, conditions at..... 377
Panama, scenes at.....404, 405
Panhard racer..... 264
Parallel ruler 32
Park, zoological 345, 346
Pastilles, making 420
Patent office museum..... 100
"Patrie," airship 470
"Pennsylvania," cruiser..... 140
Pepper and salt shaker..... 32
Parkins, W. H..... 337
Piano, Mathushek 217
Piano player, construc. 400, 401, 402
Pill machine 420
Pimero, California 214
Pioneers of Swiss army..... 212
Pipe, hole made by lightning 83
Pipe, tobacco 118
"Planet," German boat..... 464
Plant retardation 176, 177
Plow, snow 113
Plowing around trees..... 196
Pocket knife artist..... 425
Pollen collector 408
Pontoons, assembling 212
Pope-Toledo racer 232
Postage stamp, distributer.. 445
Poulsen, Valdemar 450
Powder bags, filling..... 344
Power house, Yonkers 268
Power plant, Niagara....244, 245
Press for concrete blocks.... 327
Press for embossing..... 347
President, saluting.....194, 195
Prizefighter, mechanical 13
Propellor of "R. C. Rickmers" 250
Puff box, improved..... 159

Q

Quebec bridge 225
"Queen," schooner 109

R

"R. C. Rickmers," clipper.. 241
Race for King's Cup..... 112
Racer, De Dietrich..... 281
Rail bond, new..... 13
Rails, guard, subway..... 71
Railway, Cape to Cairo..... 361
Railway coach, quick constr. 81
Railway collision, spectacle 30
Railway rolling stock..... 472
Railway signal 327
"Rainbow," sloop 112
Reed instrument 32
Reef, blasting a..... 377
Relics from Roman galley... 25
Renault automobile 65
Reservoir, Georgetown 173
Rice, blending 288
Rim, Vinet 66
Road tarring in France.188, 189
Roadbed, beautifying 406
Roller, road, gasoline..... 367
Rolls, C. S., aeronaut..... 300
Rotating masses, balancing. 196
Ruler, parallel 32
Rupture, peculiar 213

S

Salt, city of 28, 29
Salton sea 468, 469
Sanitation, Japanese 136, 137
Sanitation of Washington.152, 173
Santos Dumont and car.... 301
Saw-set, new 327
Schooner "Queen" 109
Sea lions, wild 6
Sea sickness, remedy..... 367
Sewing machine models..... 100
Shark, monster 70
Shells, assembling 345
Ship, propelling 288
Shovel, steam 397
Signal, railway 327
Slaughter house, Berlin...08, 69
Sloop "Irolita" 109
Smoking machine, a..... 24
Soddng 406
Sooty tern 431
Sound deflector, piano..... 289
"South Carolina," battleship, 82, 305
Sparring machine 13
Sphere, magic 99
Spring, vehicle 140
Stamp mill, ore..... 140
Stamp selling machine..... 445
Star, creation of a..... 323
Statues, unveiling 366
Steam excavator 285
Stilt, the 108
Stove, cook, fireless..... 380
Stream, fording a..... 212
Sugar making in Cuba..... 321
Sulphur in Louisiana..... 80
Surgery, railway accident.... 384
Sweeper, street, auto..... 139
Swimmer, screw propelled... 158
"Sybarita," yawl 112

T

Tar heating apparatus..... 189
Tarring roads in France.188, 189
Telescope mounting, simple. 230
Telegraph, printing 178
Telegraph, wireless, Lodge.. 216
Telegraphy, wireless, Poulsen 451
Teltow canal 266, 267
Tent used as rain coat..... 137
Tern, black 103
Thermophile fabrics 96
Thomas racers 233
Thunder and electric wiring. 83
Tie-bar, improved 408
Tile making tropics..... 157
Tobacco manufacture...10, 11, 12
Tobacco pipe 119
Track sanding device..... 31
Trans. prob., N. Y. city.... 481
Trap, animal 179
Tricycle, delivery 97
Trolley, improved 119
Truck, street cleaner's..... 328
Tunneling East River.....84, 85
Tunnels, whitewashing 308
Turbine for navy..... 340
Turbine, improved 13
Turbine, new Cunarder's.... 441
Turbine ship "Mauretania," 317, 320
Turtle trade, W. Indian.... 305

U

"Uailens" 484

V

Valve, stop, safety..... 179
Vanderbilt cup race.....279, 281
Vehicles, commercial 97
"Vigilant," yawl 112
"Ville de Paris," airship... 357

W

Wagon, road touring..... 189
"Walhalla," balloon 297
Washington, sanitation ..152, 173
Water tower 307
Weapons, curious 428, 429
Welch, William Henry..... 483
"Weetamoe," sloop 112
Wheel and axle, car..... 140
Wheel carrying its track... 139
Whitewashing tunnels 308
Window glass, sheet proc.... 400
Window locking device..... 235

Y

Yacht club, N. Y., cruise... 109
"Yankee," sloop 112
Yucca tree 308

Z

Zebras in harness..... 346
Zinc, aluminium, galvanizing with 151

MISCELLANY.

Figures preceded by a star (*) refer to illustrated articles.

A

Acetylene, flame of..... 447
Aero club, exhibition of.....*447
Aeronautic terminology..175, 211
Aeronautical notes 115, 319
Aeronautics in France...*363, 398
Aeroplane, genesis of..... 442
Aeroplane prizes, English.... 398
Aeroplane, Santos Dumont's, 153, 250, 318, 378
Aeroplane, Vuia, the..... 82
Aeroplane experiments, recent *470
Aeroplanes, French *116
Agriculture our wealth..... 226
Agriculture, prosperity in.... 258
Air blowing wells..... 4
Air, compressed, appliance.... 230
Air resistance 150, 211
"Air-plane" 487
Airship, a new..... 187
Airship anchor *119
Airship experiments, recent.*470
Airship, Parseval *341
Airship "Ville de Paris", 323, *364
Airship, Wellman's 87
Airship, French *116, 418
Alcohol from cornecbs..... 269
Alcohol from cacti..... 446
Alcohol, industrial 43
Alcohol investigation 70
Alcohol, methyl, dangers.... 175
Alcohol, potato, German.... 83
Alcohol smugglers, Paris....*208
Algol, new, variable..... 22
Alloy, cadmium 306
Alloy, Monel metal..... 386
Alloy of tin and zinc..... 323
Alloys of calcium 99
Alloys of tungsten..... 423
Altitude, effects of..... 71
Aluminium in plants..... 70
Aluminium paper 160
Aluminium patent 216
Aluminium production 159
Ambulance, motor *172
"America's" cup, challenger 170
Ammonia, free, in water.... 379
Anchor, airship *119
Aniline dye, discovery..... 342
Animal magnetism 177, 247
Animal trap *179
Animals, wild, tameness.... *6
Antarctic, discoveries in..... 213
Arc light, flaming *70
Argentine, products of..... 209
Argentina, products of..... 409
Armor and its attack..... 195
Armor piercing projectile... 428
Armor-plate mfr., governm't 22
Ash pan, collapsible.....*452
Automobile, hand propelled..*472
Automobile club, show of... 442
Automobile, long run..... 268
Automobile, mail delivery... *86
Automobile, notes, 9, 115, 246, 405
Automobile omnibus lines, 192, 342
Automobile racing 42
Automobile record, new..... 134
Automobile, Renault *65
Automobile, roads for..... 467
Automobile, Selden 63
Automobile show, Paris...115, 405
Automobiles, export of..... 231
Automobiles in elimination race *232
Automobiles, military 52
Automobiles, roads for..... 318
Automobiles, utility *97
Auto cars, Glidden tour..... 101
Auto dangers, rel. of speed.. 263
Autos, winning, race.....*263
Axle and wheel, car..... *140
Axles, crank, for locomot... 207

B

Balloon "Milano" 386
Balloon race, international, 259, *300, 301
Balloon voyage, long..... 466
Balloons, hydrogen for..... 190
Balloons, novel use for..... 210
Ballooning, effect on sight... 24
Balloonists, suggestion for.. 115
Baltic fleet at Tsushima..... 94
Barrettor, liquid 279
Basins, catch, cleaning.....*288
Battery, storage *44
Battleship "Dreadnought," *138, *303
Battleship "Michigan" *82
Battleship "Nebraska"..... *82
Battleship "Satsuma" 398
Battleship "South Carolina," *82, *303
Battleship 20,000-ton 462
Battleship, 21 1-2 knot..... 276
Battleships, Japanese, two.. *47
Beans, cleaning..... 430
Bearberry leaves 347
Bell casting *193
Bible, letters and words in.. 260
Bicycle, Archdeacon's *245
Birds, flight of.....*363
Birds, food of..... 379
Birds of ocean island.....*431
Blasting, liquid air..... 498
Block signal legislation..... 78
Block signals 136
Blowpipe welding process... 4
Blue prints 193
Boat, gliding 259
Boat, motor, ocean race.... 463
Boat, motor, races 211
Boiler explosions 322
Boiler, hot-air, the..... 27
Boiler, locom. explosion..... 27
Borates, metallic, the..... 379
Bore and caliber 318
Botany, up to date..... 79
Bottle, non-refillable...*119, *388
Brain anatomy 467
Brains to dissect, wanted, 131, 191
Brake mechanism *31
Brass, output of, U. S..... 191
Brass, overhauling 306
Brass solution 423
Breakfast foods 279, 359
Brewster's Neck delta..... 26
Bricklaying feat, a..... 342
Brickmaking in tropics.....*157
Bridge, Manhattan, delay in. 170
Bridge, Quebec *238
Bridging the Hudson..... 418
Brooks, William, honored.... 467
Bronze, manganese 303
Bronze in valves and pumps. 190
Brouardel, Paul, death of.... 195
Bulbs, electric light..... 179
Bullet proof shield..... 420
Bureau, intelligence, Prague. 307
Burial ground, prehistoric...*360

C

Cadmium alloy 306
Cadmium coating for iron.... 115
Caisson, collapsible *423
Caisson, lighthouse, righting.*444
Calcium, alloys of..... 99
Caliber and bore..... 318
Campanile, rebuilding *465
Camera, asteroid *132
Camera, hand, new *452
Can lifter, safety.....*388
Canal, Erie, enlargement.... *45
Canal, Panama *160, 382
Canal, Panama, by contract. 278
Canal, Teltow *266
Canals as rate regulators... 94
Canaques, becoming extinct. 82
Canceling machine, simple..*196
Cane mill apparatus.....*118
Caoutchouc, artificial 172
Caoutchouc, production of.... 259
Cape to Cairo by rail..... 358
Cape to Cairo railway..... *361
Car axle and wheel.....*140
Car door fastener *118
Car, electric, equipment....*113
Car, motor, independent..... 242
Cars, air resistance..... 150
Cars, English, in wrecks.... 62
Cars, imports of..... 326
Cars, passenger, steel..... 206
Carbon dioxide, France..... 243
Carbureter, new *44
Carpenter, Chinese 243
Casks of cork 306
Casting, largest 347
Catechism of scientist..... 483
Catgut strings, strength..... 171
Cattle fed on sugar..... 288
Celluloid, fireproof 288
Cement bases for tel. poles.. 150
Cement, fibered 154
Cement, Portland, world's production 158
Cement, switchboard 5
Cereal breakfast foods..... 279
Check for pulleys.....*140
Chemical experiment *380
Chemistry, industrial, study of 203
Chestnut tree disease *451
Chimpanzees, collection of.. 259
Chloroform, distilling 420
Cigar lighter *328
Cigar vending machine..... *31
Cinematographic disks 83
Clamp, improved *179
Clay, synthetic, Magelssen.... 302
Clipper "R. C. Rickmers"..*250
Clockwork, street lighting by 261
Coal, submerged 102
Coaling of warships *381
Cocaine, manufacture of..... 23
Coes, Loring, death of..... 63
Coin mounting machine..... *6
College, technical, future.... 227
Collision, railway, amusement *30
Color photography 263
Color photography, new pros. 304
Color sense in animals..... 23
Colorado River, controlling..*467
Comet, Finlay's, return of.... 88
Comet, Halley's 87
Comet, a new 82, 386
Comet, Thiele's 360
Commerce destroyer, the..... 130
Concrete blocks, press for...*327
Concrete building block *462

Cones, clay, in steel heating. 151
Concrete, expansion 96
Concrete, and crushed rock. 130
Concrete, waterproofing 248
Cook stoves, Breizes..... 208
Cooking, fireless *380
Copper, native, conductivity. 406
Copper output 1905..... 424
Copper, micro-chem. detec. 487
Cork for casks..... 366
Corn, Butte, Arizona..... 26
Cotton plant, utilization.... 343
Crane, electric, 150-ton..... *67
Crib, folding *31
Croton reservoir *133
Crystals showing life..... *387
Cutter head, new *235

D

Dams, irrigation 242
Deaf, suggestions for..... 303
Death test, latest..... 282
Deflector, sound *289
Depression recorder *52
Devil fish *287
Diamonds, search for..... 66
Dirigible "Patrie" *470
Diseases, tropical, study 23
Diving dress, De Fluvy ..*423
Dogs, experiments upon..... 101
Dog, reasoning in a..... 5
Door hinge *368
Door knob and bell..... *32
Door opener, automatic.....*118
Drawbridge, Duluth, wreck..*156
Drawbridge protection 358
"Dreadnought," battleship, *138, *303, 378, 426
Dredge, James 134, 206
Drug house, French..... 421
Drugs, pure, testing..... 280
Dueling school, Paris..... *340
Dye, aniline, discovery..... 342
Dynamo, experiment..... 485

E

Earth, crust of.....78, 306
Earth, interior condition of. 258
Earth, rigidity of..... 110
Earthquake, California....47, 279
Earthquake in S. America.. 131
Earthquake, theories, Japanese 5
Earthquakes and seasons.... 250
Earthquakes, official study.. 269
East River, tunneling *83
Eclipse of sun, January.....*446
Eclipses, how they occur... *98
Egg kept in rotation.....*380
Eggs, poisonous 95
Egyptian curios, sale..... 463
Electric heating fabrics..... *96
Electricity, generating 251
Electricity in gaseous state. 111
Electroplating apparatus ... *86
Electroscope, micro..... *96
Element, a new..... 193
Elephant, ancestors of.....*406
Elevator, accident to.....*213
Elevator, electric 26
Elevators, ship 342
Ellipse, how to draw....*27, *135
Embossing machine *347
Engineering notes 486
Engine exhaust, noiseless... 399
Engine, steam, design..... *44
Engines, blast furnace gas.. 406
England, disappearing 110
Erie canal, enlargement..... *45
Erosion of guns.....186, 382
Exhibition, Irish internat.... 453
Explosions, boiler 322
Exports and imports, grouping 358
Exports of coke and coal..... 235
Eye-spotting in nature.....*490

F

Fabrics, electric heating..... *96
Falls, Victoria, harnessing.. 466
Fan, novel *32
Fan shield, electric 429
Farming, dairy, course in... 430
Fertilizers, volcanic 387
Fever, hay 230
Filter, intermittent 230
Finger pad, new..... 195
Fire fighting inventions.*196, *307
Fire, San Francisco 110
Fishing sponge in Florida.... 191
Flag, Amer., first salute 62, 67
Fleet, Atlantic, review of..*155
Fleet individuals, uniformity, 191, 302
Fleets, world's, rating, new. 338
Flight, dynamic 9
Flight of birds *363
Floorings, mosaic 119
Flowers, preservation of.... 186
Fly, African, dew 367
Flying machine, evolution... 247
Flying machines, wind resist. 9
Fog, volcanic dust..... 230
Food, adulterated 115
Food preservation, vacuum.. 211
Food, pure 154, 231
Foods, breakfast 170, 359
Foods, synthesis a chimera.. 158
Forecast and fulfillment..... 258
Fuel consump. of "Lusitania" 94

G

Gage, window casement..... 452
Galleys of Lake Nemi..... *25
Galvanizing, zinc-aluminium. 151
Galveston, city on sand..... *64
Gas engines, large order..... *8
Gas, oxygen, tanks, charging 463
Gas, turning off.....*246
Gasoline, auto, Selden..... 63
Gasoline eng. and torp. boat 206
Gasoline motors, horse-power. 246
Gate, head, portable.....*179
Gem mine, greatest 170
Geography at Ithaca 26
Geology, at Ithaca 26
Gila monsters *192, 263
Glass, electr. conductive..... 154
Glass, window, sheet proc..*406
Glidden tour, the....9, 67, 81, 95
Glue, waterproof 342
Gold leaf, applying 179
Gold, sources, new..... *49
Grand Central Station, new.. 463
Grape industry, California.. 103
Graphite lubrication 423
Graveyard, prehistoric *390
Guns, caliber of..... 242
Gun, electro-magnetic *286
Gun, field, new..... 261
Gun, repeating, of 1688..... 137
Gun trials, English 378
Gun, U. S. army..... 170
Guns, erosion of, 186, 226, 231, 247, 426
Gypsy moth, parasite of.... 23

H

Hair as health indicator.... 156
Hair, color, restoration of... 231
Hailey and his comet..... 87
Hand, artificial *32
Hay fever 230
Head gate, portable.....*179
Heart of Rameses 70
Heavens in August *63
Heavens in September..... *151
Heavens in October..... *227
Heavens in November..... *299
Heavens in December..... *399
Heavens, visible, the..... *5
Herculaneum, excavation 388
Hinge, door *368
Holly wood, change in..... 302
Hook, self locking..... *32
Hook, two part..... *408
Horse-power of gasoline motors 246
Hose support *196
Hudson, Henry or Hendrick. 191
Humanity and machinery.... 156
Hurricane at Mobile *385
Hydrolithe 137
Hydrolythe, for prod. hydrogen 190
Hyphens, use of 247

I

Illiteracy in the city..... 174
Insulator, new 28
Insulator at Niagara 159
Insulators, insulating 234
Invention, mechanical, prof. 363
Inventions, oddities in..... *32
Inventions, profitable 328
Inventions, recently patented, 14, 33, 52, 72, 88, 104, 120, 141, 161, 180, 197, 218, 236, 252, 270, 289, 309, 329, 350, 369, 389, 409, 433, 453
Inventions, recently patented 473
Iona naval magazine..*325, *343
Ireland, new route to.....*262
Iron, galvanized, painting.. 307
Iron in China, manufact..... 319
Iron, magnetic prop. of..... 209
Iron, malleable, process..... 282
Iron ores, electric smelting.. 22
Iron pipe cracks, repair..... 67
Irrigation dams 242
Irrigation project, Canadian..*284
Island, a new, Bering sea.... 190

J

Jacques, spring heeled..... 429
Jet propulsion 363
Joint, bed-rail *118
Jungle, French 339
Jupiter, satellite of..... 323

K

"Katori," battleship *47
Kattea, the 210
Kerosene lamp 43
"Kishima," battleship *47
Knob and bell *32
Kromarograph *159

L

Labor saving devices.....*425
Lake basin, Tulare 339
Lamp, electric 153
Lamp, kerosene 43
Lamp, lucol *484
Land, marsh, reclama.....42, 47
Leather, pliant 175
Life-saving Service, U. S....*488
Lift dock, Peterborough..... *8
Lighthouse, caisson, righting.*444
Lightning, curious course.... 191
Lightning flashes, duration... 156
Lightning rods, decreased use 216
Lock, lift, Peterborough..... *8
Lock prob., Panama canal.. 487
Locks in flight, risk 78
Locks, Panama, safeguarding 418
Locomotive boiler explos.... 27
Locomotive roundhouse 8
Long distance run, a..... 308
Lubrication, graphite 423
Lubricator, engine *472
"Lusitania," fuel consump... 95

M

Machine, a needed..... 213
Machine, talking, Increas. power *490
Machines, cleaning 444
Machinery imports, Janese.. 366
Magazine, Iona *325, *343
Magnetic survey, Carnegie... 318
Magnetism, animal 177, 247
Mail bag catcher wanted.... 326
Man, descent of..... 111
Mantel, cigar box *213
Marconi stations, Canada..... 303
Mars, opposition of.....*383
Marsh lands, reclama..... 42
Marshmallow drops 420
Masks *248, *260
Masses, rotating, balancing..*196
Matter in a gaseous state.... 111
"Mauretania," turbine ship *320
Manuscripts, Nubian, discov. 486
Meade, W. S., death of..... 119
Meat, nutritive value..... 207
Mentha citrata 279
Merchant marine, British... 130
Message, President's, Panama Canal 482
Metals, melted in San Francisco 299
Meteorological summary, 27, 96, 190, 262, 342, 449
Meteors, recently observed.. 368
"Michigan," battleship *82
Micro-electroscope, new *96
Microphotoscope *430
"Milano," balloon 386
Milk, sterilizing 382
Milking machine *368
Mineral water, examina..... 43
Minnequa works *214
Misconceptions, curious 346
Monel-metal alloy..... 386
Mono-rail, Behr 358
Moon, harvest *262
Mortar, a curious..... 429
Mortar, wooden, Japanese.. 428
Mosquito brief 154
Moth and flame 154
Moths, facts about..... 210
Motions, sidereal 422
Motor ambulance *172
Motor boat race, ocean..... 463
Motor boat races on Hudson. 211
Motor car, Independent..... 242
Motor racing 246
Motor run by lightning *306
Motor troubles 492
Motor vehicle test 283
Mt. McKinley, ascent..... 445
Mountain building 26
Museum of Monaco *427
Museum, patent office *100
Musbrooms, facts about..... 326

N

Navy, growth of.....194, 195
Navy, U. S., growth of.....*194
Navy yard success..... 298
"Nebraska," battleship *82
Nebulae, spiral *324
Needles, points about..... 419
Nerve impulses, propagation.. 4
New York Central elec. serv. 62
New York Central terminal.*267
New York, traffic of..... 186
Nickel ore mines..... 131
Nitrates from air.....*250
Nitrogen, atmospheric ..242, 347
Nitrogen, spectrum of..... 379
Nobel prize, Roosevelt's.... 467
Noses, red, treatment.....*308

O

Oaks, live, destruction.....*385
Observatory, Greenwich, danger 102
Observatory, projected 432
Ocean waves, size of..... 378
Office building, tall.....*174
Oil, wood, Chinese..... 381
Okapi, capture of an..... 4
Omnibuses, automobile, Berlin 192
Omnibus lines, automobile... 342
Optical illusion *49
Ore stamp mill.....*140
Oscillations, electric 263
Ovid and land reclama..... 47
Ox shoeing in woods.....*367
Oxygen tanks, recharging.. 463
Oysters, floating 303
Ozobrome print 134
Ozone generator *229

P

Paige, D. O., death of..... 32
Paint, light, for machi*.. 486
Panama canal 382
Panama, canal for..... *190
Panama canal, by contract.. 278
Panama canal locks..... 418
Panama, condition at.....*403
Panama, President at..... 398
Paper, aluminium 190
Paper consumption, world's.. 307
Paper, cotton stalk..... 67
Paper machine, large..... 368
Park, zoological, novel.....*345
Patent department, *31, *118, *140, *179, 327 408, *452
Patent office in 1906..... 443
Patent office congestion..... 378
Patent office gazette 52
Patent office, improvements.. 426
Patent office models..... 82
Patent office museum.....*100
Patents, brief notes on, 32, 119, 140, 179
Patents in mfg. business... 235
Pearl, origin of..... 353
Peary's farthest north..... 359
Peary's new polar record... 345
Peat in Italy..... 390
Pepper and salt shaker..... *32
Perkins, W. H..... *337
Pharmaceutical industries, France *420
Photographing colors 263
Photography, color, new proc. 204
Photometer, new 430
Physics, history of, wanted.. 13
Piano, Mathushek *217
Piano player, interior *401
Pioneers of Swiss army.....*212
Pipe, iron, cracks, repair... 67
Pipe, tobacco, novel.....*119
Pipes, sweating of..... 386
Planet, weighing a.....*210
Planets, trans-Neptunian 135
Plant retardation *176
Plate printing machine.....*347
Plague, rats dissem..... 485
Plowing around trees.....*196
Plowing, steam, auto..... 251
Pocket knife artist.....*425
Pollen collecting device.....*408
Pomo Indians, skeletons of.. 216
Porpoise, notes on a..... 188
Postage stamp, distributor..*445
Potash alcohol, German..... 83
Potato, "Virginia," the..... 187
Power house, Port Morris..*267
Power, motive, 25 1-4 knot.*447
Power plant, Niagara.....*244
Prescription, who owns..... 381
Preserving, vacuum process, 175, 283
President at Panama 398
Press for concrete blocks...*327
Press for embossing *347
Principle, good, pushing..... 94
Printing machine, plate.....*347
Prize, aeronautic, Deutsch.. 102
Prizefighter, mechanical *13
Problem and solution 242
Propulsion, ship, jet..... 363
Puff box, improved *159
Pump, carbonic acid..... 87

Q

Quebec bridge *228
Quinine, making 421

R

"R. C. Rickmers," ship.....*250
Rabies, transmission of..... 159
Race, elimination 211, *232
Race for King's cup.....*112
Race, Grand Prix..... 9
Race, ocean, motor boat.... 463
Race, Vanderbilt cup...246, *281
Races, Dourdan 405
Races, motor boat..... 211
Racing, motor 246
Radio-thorium, isolating 432
Radium, action of.....66, 243
Radium and volc. activity.. 4
Radium, our knowledge of.. 451
Rail bond, new..... *13
Rail mill, motor driven..... 381
Rails eleva. on curves..... 130
Rails, guard, subway..... *71
Rails, steel, large order for 95
Railroad collisions 426
Railroad, N. Y. C., electric service 62
Railroad system, our vast.. 298
Railroad wrecks, English cars 62
Railway accid. and surgery.*383
Railway accident, Salisbury 27
Railway block signal legisla. 78
Railway, Cape to Cairo.....*361
Railway coach, quick constr. *81
Railway collision, spectac.. *30
Railway, electric, Atlanta.. 210
Railway, electric, Baltimore 338
Railway rolling stock.....*472
Railway signal *327
Railway, Tonkin 465
Railway, trans-Baikal 405
Railway wreck, electric..... 338
Rain circle, Niagara 383
Raisin production 63
Rapid transit proposal..... 247
Reed instrument *32
Reef, blasting a.....*382
Renault automobile *65
Reservoir, Croton *133
Rice, blending *289
Rim, Vinet *66
Road roller, gasoline.....*367
Road tarring in France.....*188
Road tarring on large scale. 153
Roads for automobiles..... 318
Roads for automobiles..... 467
Roads, good, worst enemy... 186
Roadbed, beautifying *406
Roadbed, electric 472
Rodent epidemics, investig. 235
Roller, road, gasoline.....*367
Round house, large 8
Rubber, artificial 172
Rubber, production of..... 259
Ruler, parallel *32
Rupture, peculiar *213

S

Salt, a city of..... *28
Salton Sea 378, 446
Salton Sea, controlling.....*468
San Francisco fire 110
Sandy Hook defenses..... 462
Sanitation, military, Jap....*136
Sanitation of Washington, *152, *173
Santos Dumont's flight 216
Sargasso sea, discoveries in. 110
"Satsuma," battleship 398
Science, Amer. Assoc. Adv.... 23
Science notes, 23, 190, 250, 279, 379
Science Notes 463
Sciences, Nat. Academy..... 419
Scientific research prize..... 388
Sea, effect on climate..... 130
Seasickness and the eyes..... 86
Seasickness, remedy for.....*367
Seaweed burning, Norway.... 308
Selden patent, the..... 93
Sewage dispos. Washington.*173
Sewage, nitrification of..... 227
Shark, monster *70
Shells, armor piercing...*234, 235
Ship elevator 342
Ship, propelling *288
Ship "R. C. Rickmers".....*250
Ships, old, disposal..... 5
Shipping in Antwerp 71
Shoe blacking, electric..... 424
Shoe, rim cut, repair..... 368
Shutter, photo, new..... 425
Sidot blende, phosphorescence 23
Signal, railway *327
Sink hole, Orlando, Fla..... 23
Skate, folding 140
Slaughter house, Berlin..... *68
Smelting, electric, iron..... 22
Smoking machine, a *24
Snelus, George J., death of.. 8
Soldiers, tin, cry 13
Sound deflector, piano.....*289
"South Carolina," battleship, *82, *303
Spark coils, care of..... 423
Sparks, high tens. heat of.. 46
Species, origin of, real..... 171
Specific gravity, importance. 46
Specula, liquid..... 467
Sphere, the magic 9, *99
Sponge fishing, Florida..... 191
Spring, vehicle *140
Springs, purity, radio-act.... 260
Square, try, new.....*388
Star, creation of.....*323
Star, fixed, newest..... 409
Stars, variable, new..... 408
Stars, variable, new..... 467
Statues, unveiled by elect..*396
Steam plowing, auto..... 251
Steamboat, Hudson river.... 150
Steel in valves and pumps.... 196
Steel industry, conditions in. 378
Steel, malleable, process.... 282
Steps, trolley car..... 380
Stones, precious, imitation. 424
Stones, precious, in 1905.... 62
Storms, southern 467
Stoves, cook, fireless..... 208
Street cleaner's truck *328
Street lighting, clockwork... 261
Stove, cook, fireless *380
Submarines, statistics..... 283
Subway, temperature 242
Sugar making in Cuba.....*321
Sulphur mines, Louisiana... *80
Sulphur in wood preserva... 79
Sun, eclipse of.....*446
Sun, shape of..... 298
Sun spots and earthquakes. 283
Sun spots, cause of..... 263
Surgery, railway accident..*383
Survey, magnetic, Carnegie.. 318
Sweeper, street, automatic..*139
Swimmer, screw propelled...*158
Switchboard cement 5

T

Tangye, Sir Richard 299
Tantalum 261, 307
Tarring roads in France.....*188
Tarring, road, on large scale 153
Taxidermist, modern *102
Technical courses, Columbia. 408
Technical professions, demands 463
Telegraph, printing *178
Telegraph, wireless, Lodge..*216
Telegraphy, wireless, bolometry in 79
Telegraphy, wireless, conference 319
Telegraphy, wireless, in earthquake 67
Telegraphy, wireless, Japanese navy 226
Telegraphy, wireless, Poulsen.*450
Telephone, wireless 243
Telescope mounting, simple.*230
Telephony, wireless 469
Teltow canal *286
Temperature in chemic. work 131
Temperature of Subway..... 242
Thermophile fabrics *96
Thorium minerals 190
Threshing, modern 261
Thunder and electric wiring. *83
Tie-bar, improved *408
Ties, experiments with..... 196
Tile making, tropical.....*157
Timber testing at Purdue... 381
Tissandier, Alb., death of.. 302
Tobacco, from leaf to cigar. *10
Tobacco pipe, novel.....*119
Toe-nailing 85
Toothpicks, reed 172
Torch, incendiary 429
Tower, water, new *307
Track sanding device..... *31
Traffic of New York..... 186
Transport, prob., N. Y. city.*486
Trap, animal *179
Trolley car steps 380
Trolley, improved *110
Trout, tame 306
Tube, tunnel, completed..... 207
Tuberculosis, vaccine for.... 306
Tulare lake basin 339
Tungsten, alloys 423
Tunnel, Alpine, and other... 98
Tunnel, Hudson R. tube..... 206
Tunnel to Brooklyn open.... 466
Tunnels, double, Penns. R.R. 278
Tunnels, East River..... 378
Tunnels, N. Y city, present condition 482
Tunnels, whitewashing *308
Tunneling by freezing..... 22
Tunneling East river..... *83
Tunneling, river 258
Turbine for navy *340
Turbine, improved *13
Turbine, latest success 318
Turbine ship "Mauretania"..*321
Turbine vessels 1906..... 5
Turbines, Westinghouse, navy 227
Turtle trade *363

U

United States, area of..... 367
Universities, Amer., growth. 206
"Unilens" *484
Upas arrow poison..... 492

V

Vaccine for tuberculosis..... 306
Vacuum preserving 175, 211
Valve, improved *52
Valve, stop, safety *179
Vanderbilt cup race....*263, *281
Vehicles, commercial *97
Vial, double glass..... 140
Victoria Falls, harnessing.... 466
Villa, Roman, discov..... 308
"Ville de Paris," airship, 323, *364
Volcanic act. and radium..... 4
Volcanic dust fog..... 230
Voltax, new insulator..... 28

W

War cart 428
Washington, sanitation of, *152, *173
Waste turned into money... 245
Water, color of..... 95
Water freezing in tubes.... 407
Water, hot, supply to towns.*190
Water, mineral, examina.... 43
Water wells, and earthquakes 279
Waters, mineral, testing ... 303
Waterproofing concrete 248
Waves, ocean, size of..... 378
Weapons, curious *428
Welch, William Henry.....*483
Welding proc., blow pipe... 4
Wells, blowing 115
Wells, vagaries of..... 4
Wesson, D. B., death of.... 111
Wheel and axle, car.....*139
Wheel that carries its track.*139
Whitewashing tunnels *308
Window glass, sheet proc..*406
Window raising device.....*235
Wireless conference, international 319
Wood oil, Chinese..... 380
Wood preservative, sulphur in 79
Words and letters in Bible.. 359
Wormholes in wood..... 387

Y

Yucca tree *308